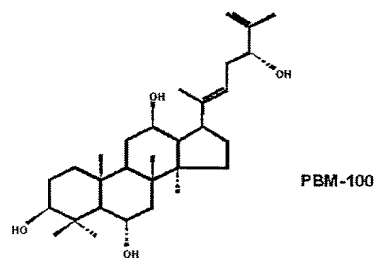
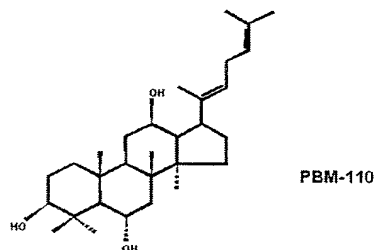


5 [0011] The invention in a second embodiment is directed to a sapogenin according to the formula:

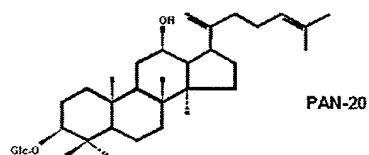


10 [0012] The invention in a third embodiment is directed to a sapogenin according to the formula:



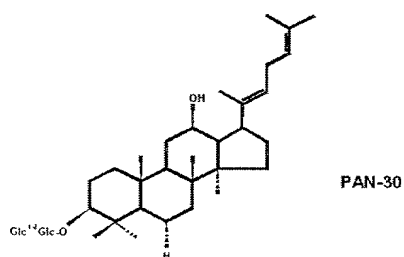
[0013] The invention in a fourth embodiment is directed to a sapogenin according to the formula:

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[0014] The invention is a fifth embodiment is directed to a sapogenin according to the formula:

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[0015] The invention also pertains to the use of a sapogenin according to the formula of the invention in treating cancer cells in a human being suffering from cancer, comprising killing cancer cells, inducing apoptosis in cancer cells, or inhibiting multiplication of cancer cells, or any combination thereof. The sapogenins of the invention are particularly useful in treating drug resistant cancer cells (MDR) in a human being suffering from cancer, comprising using the sapogenins either singly, or in combination with one another, or in combination with other chemotherapy agents.

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[0016] The invention also pertains to a method of treating cancer in human beings or other animals suffering from cancer comprising administering to said human beings or other animals a therapeutically effective amount of a composition comprising one or more of PAM-120, PBM-100, PBM-110, PAN-20 and PAN-30.

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[0017] The method can comprise a pharmaceutically effective amount of PAM-120, PAM-100, PBM-110, PAN 20 and PAN-30, with or without one or more pharmaceutically acceptable carriers. The active ingredient can be administered in a dosage of between 5 micrograms to 50 grams per 1 kg body weight per day. A preferred range is 50 micrograms to 5 grams per 1 kg body weight per day. The form of the composition can be selected from the group consisting of an orally administrable form, an injectable form, and a topically applicable form.

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[0018] The orally administrable form can be selected from the group consisting of a tablet, a powder, a suspension, an emulsion, a capsule, a granule, a troche, a pill, a liquid, a spirit, a syrup and a lemonade. The injectable form can be selected from the group consisting of a liquid, a suspension and a solution. The topically applicable form can be selected from the group consisting of a drop, a paste, an ointment, a liquid, a powder, a plaster, a suppository, an aerosol, a liniment, a lotion, an enema and an emulsion. The composition can be administered to human beings or other animals who are receiving one or more other anti-cancer treatments. The composition can be formulated with one or more other anti-cancer agents, for additive treatment effects, or synergistic treatment effects on multi-drug resistance cancers or any other cancer type.

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[0019] The invention also includes the incorporation of the sapogenins according to the invention in foods, health foods, nutritional products, natural products and alternative medicine products.

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[0020] The invention also pertains to a process of preparing a sapogenin which comprises producing a ginsenoside extract from plants selected from the group consisting of panax ginseng, panax quinquefol and panax notoginseng, and proceeding according to the following steps: (a) mixing the ginsenoside extract with water; (b) (i) mixing the ginsenoside extract and water with a short-chain (1-5 carbon) alkali-metal alcoholate solution or a hydroxide-ethanol solution to produce a mixture; and (ii) placing the resultant mixture in a reaction tank so that the resultant mixture can undergo chemical reactions under required high temperature and high

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